[13806/28]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	Examiner: Rebecca Y. Lee
Barbara HOPPE et al.	
For: SOLDER ALLOY, USE OF THE SOLDER ALLOY AND METHOD FOR PROCESSING, PARTICULARLY REPAIRING, WORKPIECES, PARTICULARLY GAS TURBINE COMPONENTS	
	Art Unit: 1793
Filed: March 29, 2007	
Serial No.: 10/581,778	

VIA EFS-WEB
Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being electronically transmitted to the United States Patent and Trademark Office via the Office electronic filing system on **June 28, 2010**.
Signature: /Helen Tam/
Helen Tam

APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

SIR:

On April 7, 2010, Appellants filed a Notice of Appeal from the last decision of the Examiner contained in the Final Office Action dated December 18, 2009 in the above-identified patent application.

In accordance with 37 C.F.R. § 41.37, this brief is submitted in support of the appeal of the rejections of claims 24 to 30 and 32 to 34. For at least the reasons set forth below, the final rejections of claims 24 to 30 and 32 to 34 should be reversed.

1. REAL PARTY IN INTEREST

The real party in interest in the present appeal is MTU AERO ENGINES GmbH of Muenchen in the Federal Republic of Germany, which is the assignee of the entire right, title and interest in and to the present application.

2. RELATED APPEALS AND INTERFERENCES

There are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the assignee, MTU AERO ENGINES GmbH, "which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal."

3. STATUS OF CLAIMS

Claims 1 to 23 and 31 have been canceled.

Claims 24 to 30 and 32 to 55 are pending.

Claims 35 to 55 have been withdrawn.

Claims 24 to 30, 32, and 33 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of UK Patent Application Publication No. 2 153 845 ("Shaw et al.") and U.S. Patent Application Publication No. 2002/0157737 ("Chesnes et al.").

Claims 24 and 34 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Shaw et al., U.S. Patent No. 4,802,933 ("Rabinkin"), and Japanese Patent Application Publication No. 63-65044 ("Wakushima et al.").

A copy of the appealed claims, *i.e.*, claims 24 to 30 and 32 to 34, is attached hereto in the Claims Appendix.

4. STATUS OF AMENDMENTS

In response to the Final Office Action dated December 18, 2009, Appellants submitted a "Reply Under 37 C.F.R. § 1.116" ("the Reply") on February 24, 2010. The Reply did not include any proposed amendments to the claims. As such, it is Appellants' understanding that the claims as included in the annexed "Claims Appendix" reflect the current status of the claims.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The claims on appeal include one independent claim, *i.e.*, claim 24.

Independent claim 24 relates to a solder alloy based on nickel. *Specification*, page 2, line 10. Claim 24 recites that the solder alloy includes at least chromium, cobalt, molybdenum and nickel. *Specification*, page 2, lines 10 to 12. Claim 24 recites that the solder alloy includes at least a combination of palladium, boron, and yttrium configured to set

a melting range of the solder alloy in a range of from about 1200°C to about 1260°C. *Specification*, page 4, lines 1 to 5.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 24 to 30, 32, and 33 are unpatentable under 35 U.S.C. § 103(a) over the combination of Shaw et al. and Chesnes et al.

B. Whether claims 24 and 34 are unpatentable under 35 U.S.C. § 103(a) over the combination of Shaw et al., Rabinkin, and Wakushima et al.

7. ARGUMENTS

A. Rejection of Claims 24 to 30, 32, and 33 Under 35 U.S.C. § 103(a)

Claims 24 to 30, 32, and 33 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Shaw et al. and Chesnes et al. It is respectfully submitted that the combination of Shaw et al. and Chesnes et al. does not render unpatentable the present claims for at least the following reasons.

Claim 24 relates to a solder alloy based on nickel, including at least the following elements: chromium, cobalt, molybdenum and nickel; and *a combination of palladium, boron, and yttrium configured to set a melting range of the solder alloy in a range of from about 1200°C to about 1260°C.*

The combination of Shaw et al. and Chesnes et al. does not disclose, or even suggest, all of the claimed features of claim 24. In this regard, nowhere does Shaw et al. even refer to a combination of palladium, boron, and yttrium. Indeed, the Final Office Action at page 3 admits that "Shaw et al. neither expressly teach the alloy further comprises palladium in the claimed amount …, nor teach the claimed melting range of the alloy." Therefore, Shaw et al. does not disclose, or even suggest, the feature of *a combination of palladium, boron, and yttrium configured to set a melting range of the solder alloy in a range of from about 1200°C to about 1260°C.*

Further, Chesnes et al. also does not disclose, or even suggest, all of the claimed features of claim 24. Instead, Chesnes et al. merely indicates a braze alloy powder mixture including a low-melt powder composition and a high-melt powder composition. Chesnes et al., ¶ 6. In addition, the low-melt powder composition melts at a range of 2100°F +/- 100°F (~1093°C to ~1204°C), and the high-melt powder composition melts above 2400°F (~1315°C). Chesnes et al., ¶ 24. Thus, the braze alloy powder mixture of Chesnes et al. does not have a defined melting range. Instead, the low-melt composition melts between about

~1093°C and ~1204°C, and the high-melt composition melts above ~1315°C. Thus, Chesnes et al. describes compositions that have melting ranges outside the range of about 1200°C to about 1260°C. Accordingly, Chesnes et al. teaches away from a combination of palladium, boron, and yttrium configured to set a melting range between about 1200°C to about 1260°C.

As a result, although the combination of Shaw et al. and Chesnes et al. may mention each of palladium, boron, and yttrium, the combination of Shaw et al. and Chesnes et al. does not disclose a combination of palladium, boron, and yttrium configured to set a melting range between about 1200°C to about 1260°C because, as more fully set forth above, Shaw et al. does not even mention such a melting range and Chesnes et al., in fact, teaches away from such a melting range. Therefore, the combination of Shaw et al. and Chesnes et al. does not disclose, or even suggest, the feature of *a combination of palladium, boron, and yttrium configured to set a melting range of the solder alloy in a range of from about 1200°C to about 1260°C.*

Accordingly, it is respectfully submitted that the combination of Shaw et al. and Chesnes et al. does not disclose, or even suggest, all of the features included in claim 24. Therefore, it is respectfully submitted that the combination of Shaw et al. and Chesnes et al. does not render unpatentable claim 24 for at least the foregoing reasons.

Thus, as for claims 25 to 30, 32, and 33, which depend from and therefore include all of the features included in claim 24, it is respectfully submitted that the combination of Shaw et al. and Chesnes et al. does not render unpatentable these dependent claims for at least the reasons more fully set forth above.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

B. Rejection of Claims 24 and 34 Under 35 U.S.C. § 103(a)

Claims 24 and 34 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Shaw et al., U.S. Patent No. 4,802,933 ("Rabinkin"), and Japanese Patent Application Publication No. 63-65044 ("Wakushima et al."). It is respectfully submitted that the combination of Shaw et al., Rabinkin, and Wakushima et al. does not render unpatentable the present claims for at least the following reasons.

The combination of Shaw et al., Rabinkin, and Wakushima et al. does not disclose, or even suggest, all of the claimed features of claim 24. As more fully set forth above and as admitted by the Final Office Action at page 3, Shaw et al. does not disclose, or even suggest, the feature of *a combination of palladium, boron, and yttrium configured to set*

a melting range of the solder alloy in a range of from about 1200°C to about 1260°C. Neither Rabinkin nor Wakushima et al. cures the critical deficiencies of Shaw et al.

In this regard, although Rabinkin refers to alloys including palladium, Rabinkin explicitly teaches away from the inclusion of boron in the alloys. Col. 1, lines 30 to 45. Thus, Rabinkin teaches away from the feature of *a combination of palladium, boron, and yttrium*. Further, Rabinkin merely describes a melting temperature range of between about 920°C and about 1020°C. Col. 3, lines 59 to 63. Thus, Rabinkin does not disclose, or even suggest, the feature of *a combination of palladium, boron, and yttrium configured to set a melting range of the solder alloy in a range of from about 1200°C to about 1260°C*. Further, Wakushima et al. merely describes using boron as a melting point depressant. However, nowhere does Wakushima et al. disclose, or even suggest, the feature of *a combination of palladium, boron, and yttrium configured to set a melting range of the solder alloy in a range of from about 1200°C to about 1260°C*. Therefore, the combination of Shaw et al., Rabinkin, and Wakushima et al. does not disclose, or even suggest, the feature of *a combination of palladium, boron, and yttrium configured to set a melting range of the solder alloy in a range of from about 1200°C to about 1260°C.*

As a result, although the combination of Shaw et al., Rabinkin, and Wakushima et al. may mention each of palladium, boron, and yttrium, the combination of Shaw et al., Rabinkin, and Wakushima et al. does not disclose a combination of palladium, boron, and yttrium configured to set a melting range between about 1200°C to about 1260°C because, as more fully set forth above, Shaw et al. does not even mention such a melting range, Rabinkin specifically teaches away from the inclusion of boron and also does not disclose such a melting range, and Wakushima et al. also does not refer to such a melting range. Therefore, the combination of Shaw et al., Rabinkin, and Wakushima et al. does not disclose, or even suggest, the feature of *a combination of palladium, boron, and yttrium configured to set a melting range of the solder alloy in a range of from about 1200°C to about 1260°C.*

Accordingly, it is respectfully submitted that the combination of Shaw et al., Rabinkin, and Wakushima et al. does not disclose, or even suggest, all of the features included in claim 24, and its dependent claim 34. As such, it is respectfully submitted that the combination of Shaw et al., Rabinkin, and Wakushima et al. does not render unpatentable claim 24, and its dependent claim 34.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

8. CLAIMS APPENDIX

A "Claims Appendix" is attached hereto and appears on the two (2) pages numbered "Claims Appendix 1" to "Claims Appendix 2."

9. EVIDENCE APPENDIX

No evidence has been submitted pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellants in the appeal. An "Evidence Appendix" is nevertheless attached hereto and appears on the one (1) page numbered "Evidence Appendix."

10. RELATED PROCEEDINGS APPENDIX

As indicated above in Section 2, "[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the assignee, MTU AERO ENGINES GmbH, 'which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.'" As such, there are no "decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]" to be submitted. A "Related Proceedings Appendix" is nevertheless attached hereto and appears on the one (1) page numbered "Related Proceedings Appendix."

11. CONCLUSION

For at least the reasons indicated above, Appellants respectfully submit that the art of record does not disclose or suggest the subject matter as recited in the claims of the above-identified application. Accordingly, it is respectfully submitted that the subject matter as set forth in the claims of the present application is patentable.

In view of all of the foregoing, reversal of all of the rejections set forth in the Final Office Action is therefore respectfully requested.

Respectfully submitted,

Dated: June 28, 2010

By: /Clifford A. Ulrich/
Clifford A. Ulrich
Reg. No. 42,194

KENYON & KENYON LLP
One Broadway
New York, New York 10004
(212) 425-7200
CUSTOMER NO. 26646

CLAIMS APPENDIX

24. A solder alloy based on nickel, comprising at least the following elements:

chromium, cobalt, molybdenum and nickel; and

a combination of palladium, boron, and yttrium configured to set a melting range of the solder alloy in a range of from about 1200°C to about 1260°C.

25. The solder alloy according to claim 24, wherein the nickel is in a proportion of 63 to 86 wt.%, the chromium is in a proportion of 5 to 17 wt.%, the cobalt is in a proportion of 8 to 15 wt.%, and the molybdenum is in a proportion of 1 to 5 wt.%.

26. The solder alloy according to claim 24, wherein the solder alloy additionally includes aluminum.

27. The solder alloy according to claim 24, wherein the solder alloy additionally includes aluminum in a proportion of 2 to 8 wt.%.

28. The solder alloy according to claim 24, wherein the solder alloy additionally includes at least one of (a) tantalum in a proportion of 1 to 8 wt.% and (b) niobium in a proportion of 0.1 to 2 wt%.

29. The solder alloy according to claim 24, wherein the solder alloy includes palladium in a proportion of 0.5 to 5 wt.% and yttrium in a proportion of 0.1 to 1 wt%.

30. The solder alloy according to claim 24, wherein the solder alloy additionally includes at least one of (a) hafnium in a proportion of 1 to 5 wt.% and (b) silicon in a proportion of 0.1 to 1 wt%.

32. The solder alloy according to claim 24, wherein the solder alloy includes boron in a proportion of 0.5 to 2.5 wt.%.

33. The solder alloy according to claim 24, wherein the chromium is in a proportion of 5 to 17 wt.%, the cobalt is in a proportion of 8 to 15 wt.% and the molybdenum is in a proportion of 1 to 5 wt.%;

wherein the solder alloy additionally includes aluminum in a proportion of 2 to 8 wt.%, tantalum in a proportion of 1 to 8 wt.%, niobium in a proportion of 0.1 to 2 wt.%, yttrium in a proportion of 0.1 to 1 wt.%, hafnium in a proportion of 1 to 5 wt.%, palladium in a proportion of 0.5 to 5 wt.%, boron in a proportion of 0.5 to 2.5 wt.% and silicon in a proportion of 0.1 to 1 wt.%; and

wherein the nickel is in a residual proportion such that a sum of the portions yields 100 wt.%.

34. The solder alloy according to claim 24, wherein the chromium is in a proportion of 9 to 11 wt.%, the cobalt is in a proportion of 9 to 11 wt.% and the molybdenum is in a proportion of 3.5 to 4.5 wt.%;

wherein the solder alloy additionally includes aluminum in a proportion of 3.5 to 4.5 wt.%, tantalum in a proportion of 1.5 to 2.5 wt.%, niobium in a proportion of 0.5 to 1.5 wt.%, yttrium in a proportion of 0.1 to 0.5 wt.%, hafnium in a proportion of 3.5 to 4.5 wt.%, palladium in a proportion of 3.5 to 4.5 wt.% and boron in a proportion of 1.5 to 2.0 wt.%; and

wherein the nickel is in a residual proportion such that a sum of the portions yields 100 wt.%.

EVIDENCE APPENDIX

No evidence has been submitted pursuant to 37 C.F.R. §§1.130, 1.131, or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellants in the appeal.

RELATED PROCEEDINGS APPENDIX

As indicated above in Section 2 of this Appeal Brief, "[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the assignee, MTU AERO ENGINES GmbH, 'which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.'" As such, there are no "decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]" to be submitted.